CLAIM(S):

1. A boom system comprising:

a first boom section having a distal end and a proximal end;

a second boom section, the second boom section having a distal end and a proximal end, the proximal end rotatably coupled to the distal end of the first boom section;

a concrete piping system supported by the boom sections;

a concrete pump attached to the concrete piping system; and

wherein at least one of the first and second boom sections is substantially formed from composite materials.

2. The boom system of claim 1 wherein the concrete piping system comprises a plurality of pipe sections and transitional piping connected between the pipe sections.

3. The boom system of claim 2 wherein at least some of the pipe sections and the transitional piping are formed from fiber reinforced composite materials.

4. The boom system of claim 3 wherein the inside surface of the composite piping sections are formed of material resistant to abrasion from concrete.

5. The boom system of claim 1 and further comprising:

an actuator connected between the first boom section and the second boom section allowing the second boom section to be articulated with respect to the first boom section.

6. The boom system of claim 1 wherein the composite materials comprise multiple layers of reinforced fibers embedded in a matrix, the matrix

comprised of thermoset resins, wherein the reinforced fibers provide corrosion resistance, high strength, stiffness and vibration damping.

7. The boom system of claim 1 and further comprising:

a third boom section rotatably coupled to one of the first boom section and second boom section.

8. A material transport system comprising;

a truck; and

a boom system mounted on the truck including:

a plurality of boom sections, each boom section engaged in articulated fashion with an adjacent boom section;

a piping system supported by the boom sections; and

a pump for flowable materials connected to the piping system;

wherein at least one of the boom sections are substantially formed from composite materials, the composite materials comprising multiple layers of fibers embedded in matrix material.

9. The boom system of claim 8 wherein the fibers are selected from a group consisting of carbon fibers, glass fibers, and aramid fibers.

10. The boom system of claim 8 wherein the matrix material is selected from a group consisting of polyesters, vinyl esters, and epoxy resins.

11. The material transport system of claim 8 wherein at least a portion of the piping system is formed from composite materials.

12. The material transport system of claim 8 wherein the pump is a concrete pump.

13. The material transport system of claim 8 wherein the pump is designed to pump water.

14. The material transport system of claim 8 wherein the pump is designed to pump municipal and industrial waste.

15. A boom section comprising:

a first fiber reinforced thermoset composite material layer including glass fibers in a vinyl ester matrix;

a second fiber reinforced thermoset composite material layer disposed over the first composite material layer, the second composite material layer including carbon fibers in an epoxy matrix;

an aluminum flex core layer disposed over the second composite material layer,

a third fiber reinforced thermoset composite material layer disposed over the aluminum flex core layer, the third composite material layer including aramid fibers in a vinyl ester matrix; and

a fourth fiber reinforced thermoset composite material layer disposed over the third composite material layer, the fourth composite material layer comprising glass fibers in a vinyl ester matrix.

16. A method of forming a fiber reinforced thermoset composite boom section, the method comprising:

creating a form having a longitudinal axis by attaching internal sandwich block-outs longitudinally to a mandrel;

coating the form with a wax layer;

forming a plurality of fiber reinforced thermoset composite material layers over the form;

allowing the thermoset composite material layers to cure; and

removing the form.

17. The method of claim 16 wherein one fiber reinforced thermoset composite material layer is formed by winding an S-2 glassed filament wetted with vinyl ester resin in a helical pattern at an angle approximately 20° from the longitudinal axis of the form.

18. The method of claim 16 wherein one fiber reinforced thermoset composite material layer is formed by winding a carbon filament wetted with epoxy resin in a polar pattern at an angle approximately 0° from the longitudinal axis of the form.

19. The method of claim 16 wherein one fiber reinforced thermoset composite material layer is formed by winding an aramid filament wetted with a vinyl ester resin in a helical pattern at an angle approximately 30° from the longitudinal axis of the form.

20. The method of claim 16 wherein one fiber reinforced thermoset composite material layer is formed by winding an S-2 glass filament wetted with an epoxy resin in a helical pattern at an angle approximately 60° from the longitudinal axis of the form.

21. The method of claim 16 wherein the plurality of fiber reinforced thermoset composite layers are formed about the form at an angle ranging from approximate 20° to 90° from the longitudinal axis of the form.

22. The method of claim 16 wherein forming the plurality of fiber reinforced thermoset composite material layers comprises:

winding an S-2 glass filament wetted with vinyl ester resin in a helical pattern at an angle approximately 20° from the longitudinal axis of the form;

winding a carbon filament wetted with epoxy resin in a polar pattern at an angle approximately 0° from the longitudinal axis of the form;

winding an aramid filament wetted with a vinyl ester resin in a helical pattern at an angle approximately 30° from the longitudinal axis of the form; and

winding an S-2 glass filament wetted with an epoxy resin in a helical pattern at an angle approximately 60° from the longitudinal axis of the form.

23. A boom system comprising:

a first boom section having a distal end and a proximal end;

a second boom section, the second boom section having a distal end and a proximal end, the proximal end rotatably coupled to the distal end of the first boom section; and

wherein at least one of the first and second boom sections is substantially formed from fiber reinforced composite materials.

24. The boom system of claim 23 and further comprising:

a pipeline supportably engaged with the first and second boom sections.

25. The boom system of claim 23 and further comprising:

at least one additional boom section.

26. The boom system of claim 25, wherein at least one boom section is substantially formed from metal and further comprising:

a stiffening layer attached to a surface of at least one metal boom section, wherein the stiffening layer is formed of a fiber-reinforced composite material including a plurality of fibers and a matrix material.

27. A material transport system comprising:

a truck; and

a boom system attached to the truck including:

a first boom section having a distal end and a proximal end;

a second boom section, the second boom section having a distal end and a proximal end, the proximal end rotatably coupled to the distal end of the first boom section; and

wherein at least one of the first and second boom sections is substantially formed from composite materials.